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| EXAMINER |
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NGUYEN, DONGHAI D

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| ART UNIT | PAPER NUMBER |
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3729

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| NOTIFICATION DATE | DELIVERY MODE |
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09/18/2009

ELECTRONIC

Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

Notice of the Office communication was sent electronically on above-indicated "Notification Date" to the following e-mail address(es):

mailroom@bskb.com

| | | | |
|------------------------------|--------------------------------------|------------------------------------|--|
| Office Action Summary | Application No. 09/901,592 | Applicant(s) HOLM ET AL. | |
| | Examiner DONGHAI D. NGUYEN | Art Unit 3729 | |

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 29 July 2009.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-8, 19, 20, 31, 34 and 37-44 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1-8, 19, 20, 31, 34 and 37-44 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on _____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☒ All b) ☐ Some * c) ☐ None of:
1. ☒ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. _____.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- | | |
|--|---|
| 1) <input type="checkbox"/> Notice of References Cited (PTO-892) | 4) <input type="checkbox"/> Interview Summary (PTO-413) |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | Paper No(s)/Mail Date. _____ |
| 3) <input checked="" type="checkbox"/> Information Disclosure Statement(s) (PTO/SB/08) | 5) <input type="checkbox"/> Notice of Informal Patent Application |
| Paper No(s)/Mail Date <u>7/29/09</u> . | 6) <input type="checkbox"/> Other: _____ |

DETAILED ACTION

Response to Amendment

1. The proposed reply filed on June 11, 2009 has been considered and entered.

Claim Rejections - 35 USC § 102

2. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(b) The invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

3. Claims 1, 8, 19, 20, 31, 34, 39 and 43 are rejected under 35 U.S.C. 102(b) as being anticipated by US Patent 5,639,010 to Todd et al with US Patent 5,364,011 to Baker as an intrinsic evidence for non-contact dispenser.

Regarding claim 1, Todd et al disclose a method of applying viscous medium on a substrate, said method comprising the steps of: providing a substrate (having electrodes 16) arranged for mounting of electronic components (20) thereon; screen printing (step 32, see Fig. 2) predetermined amounts of a viscous medium (solder) on predetermined positions on the substrate (see Col. 3, lines 1-5); add-on jetting (step 34) of predetermined additional amounts of viscous medium (18) on predetermined positions on the screen printed substrate (see Fig. 1); and determining the predetermined additional amounts and predetermined positions prior to screen printing (inherent because the location and an amount of viscosity medium 18 must be determined when the circuit board is designed), wherein the add-on jetting is non-contact dispensing and the add-on jetting viscous medium is still in viscous form during the add-on

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jetting (see Col. 3, lines 13-17). Note that Todd et al disclose the add-on viscous medium as a drop is dispensed via automatic equipment and Baker et al disclose a drop of solder (19) as is dispensed via the automatic system (10, see Col. 9, lines 4-5) is non-contact dispensing (see Fig. 1).

Regarding claim 8, Todd et al disclose the viscous medium (18, adhesive) through said add-on jetting which is different from the viscous medium applied through screen printing (solder).

Regarding claims 31 and 34, Todd et al disclose jetting individual droplets of viscous medium (18) are of a predetermined volume (see Fig. 1) at said predetermined positions on the screen printed substrate (see Col. 3, lines 13-17).

Regarding claim 19, Todd disclose a method of applying viscous medium on a substrate, said method comprising the steps of: providing the substrate (12) arranged for mounting of electronic components (20) thereon; screen printing (step 32, see Fig. 2) a viscous medium (solder) onto the substrate (see Col. 3, lines 1-5); jetting (step 34) additional viscous medium (18.) onto the substrate (see Fig. 1); and determining the predetermined additional amounts and predetermined positions prior to screen printing (inherent because the location and an amount of viscosity medium 18 must be determined when the circuit board is designed), wherein the add-on jetting viscous medium is non-contact dispensing and the add-on jetting viscous medium is still in viscous form during the add-on jetting (see Col. 3, lines 13-17).

Regarding claim 20, Todd et al disclose a method of applying additional viscous medium on a substrate (12) that has been screen printed (see Col. 3, lines 1-5) with viscous medium (solder), said method comprising the step of: providing the substrate (having solder pads 16)

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arranged for mounting of electronic components (20) thereon; jetting (see step 34 in Fig. 2) additional viscous medium (18) onto the substrate (see Fig. 1); and determining the predetermined additional amounts and predetermined positions prior to screen printing (inherent because the location and an amount of viscosity medium 18 must be determined when the circuit board is designed), wherein the jetting additional viscous medium is non-contact dispensing and the add-on jetting viscous medium is still in viscous form during the add-on jetting (see Col. 3, lines 13-17).

Regarding claim 39, Todd et al disclose a method of applying viscous medium on a substrate, said method comprising the steps of: providing a substrate (having solder pads 16) arranged for mounting of electronic components (20) thereon; screen printing (see Col. 3, lines 1-5) predetermined amounts of a viscous medium (solder) on predetermined positions on the substrate; add-on jetting (see step 34 in Fig. 2) of individual droplets of viscous medium (18) on predetermined positions on the screen printed substrate (see Fig. 1); and determining the predetermined positions of the add-on jetting prior to screen printing (inherent because the location of viscosity medium 18 must be determined when the circuit board is designed), wherein the add-on jetting is non-contact dispensing and the add-on jetting viscous medium is still in viscous form during the add-on jetting (see Col. 3, lines 13-17).

Regarding claim 43, Todd et al disclose mounting electronic components (20) on the substrate (see Fig. 1).

Note that Todd et al disclose the add-on viscous medium as a drop of adhesive is dispensed via automatic equipment and Baker et al disclose a drop of solder (19) is dispensed via the automatic system (10, see Col. 9, lines 4-5) as non-contact dispensing (see Fig. 1).

Claim Rejections - 35 USC § 103

4. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

5. Claims 1-8, 19, 20, 31, 34 and 37-44 are rejected under 35 U.S.C. 103(a) as being unpatentable over US Patent 5,638,597 to Cutting et al in view of US Patent 5,714,195 to Shiba et al.

Regarding claims 1, 19, 20, 39 and 41, Cutting et al disclose a method of applying viscous medium on a substrate, said method comprising the steps of: providing a substrate (see Fig. 7) arranged for mounting of electronic components (410) thereon; screen printing (see Col. 4, lines 52-55) predetermined amounts of a viscous medium (solder) on predetermined positions (solder pads 402, 404, etc.) on the substrate; add-on additional amount of solder to the screen printed viscous medium if necessary (see Col. 5, lines 15-17); and determining the predetermined additional amounts and predetermined positions prior to screen printing (inherent because the location and an amount of viscosity medium 18 must be determined when the circuit board is designed). Cutting et al do not disclose a specific method of adding additional viscous medium such as add-on jetting, wherein the add-on jetting is non-contact dispensing. Shiba et al teach the step of add-on additional viscous medium (see Figs. 7-9) onto the positions of the viscous medium provided on the substrate by non-contact dispensing (see Col. 11, lines 28-29) for efficiently and greatly improve the process of repairing a defective portion of viscous

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medium on the substrate (see Col. 12, lines 22-27). Therefore, it would have been obvious to one having ordinary skill in the art at the time the invention was made to modify the invention of Cutting et al by utilized the add-on jetting additional viscous medium onto the substrate as taught by Shiba et al for efficiently and greatly improve the process of repairing a defective portion of viscous medium on the substrate.

The limitations of claims 19, 20, 39, 41 and 44 also met as set forth above.

Regarding claims 2-7, 31 and 34, Shiba et al teach the inspecting the results of viscous material applied on the substrate and correcting the viscous material by jetting individual droplets of additional viscous material to the board or removing viscous material from the substrate (see Figs. 7-10) for efficiently and greatly improve the process of repairing a defective portion of viscous medium on the substrate (see Col. 12, lines 22-27). Therefore, it would have been obvious to one having ordinary skill in the art at the time the invention was made to modify the invention of Cutting et al by utilized the inspecting and add-on jetting additional viscous medium on to the viscous medium provided on the substrate as taught by Shiba et al for efficiently and greatly improve the process of repairing a defective portion of viscous medium on the substrate (see Col. 12, lines 22-27).

Regarding claims 37, 38, 40 and 42, Cutting et al disclose the additional viscous medium is solder paste and same as the viscous medium disclose through screen printing (see Col. 5, lines 17).

Regarding claim 43, Cutting et al disclose mounting electronic components (410) on the substrate (see Figs. 7 and 14).

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Regarding claim 8, Cutting/Shiba et al do not disclose the viscous medium through said add-on jetting is different from the viscous medium applied through screen printing. It would have been an obvious matter of design choice to one having ordinary skill in the art at the time the invention was made to choose any desired viscous medium through said add-on jetting which is different from the viscous medium applied through screen printing, since Applicants have not disclosed the specific viscous medium in the screen printing and jet printing, solves any stated problem or is for any particular purpose and it appears the invention would perform equally well with the viscous medium disclosed by Cutting/Shiba et al.

Response to Arguments

6. Applicant's arguments with respect to claims 1-8, 19, 20, 31, 34 and 37-44 have been considered but are moot in view of the new ground(s) of rejection.

7. Applicant's arguments filed on June 11, 2009 have been fully considered but they are not persuasive. Applicants argue that "Todd et al. reference is silent with regard to the step of determining the predetermined additional amounts and predetermined positions prior to screen printing" (see "Remarks" page 9, 3rd paragraph). The Examiner disagrees because Todd et al inherently disclose the additional amounts and positions of viscosity medium (18) must be determined according to the designed of the circuit board, prior the manufacturing the circuit board.

Conclusion

Any inquiry concerning this communication or earlier communications from the examiner should be directed to DONGHAI D. NGUYEN whose telephone number is (571)272-4566. The examiner can normally be reached on Monday-Friday (9:00-6:00).

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Derris H. Banks can be reached on (571)-272-4419. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

DN
September 14, 2009

/Donghai D. Nguyen/
Primary Examiner, Art Unit 3729